

WHAT IS CLAIMED IS:

1. An encoding device for encoding image information to be inputted, comprising:

encoding means which applies predetermined encoding processing to the image information; and

first storing means which, when said encoding means applies said encoding processing to the image information, stores state quantity information representing a predetermined state quantity which is used while being sequentially updated according to a processing state of said encoding processing, wherein

said encoding means reads out only a necessary part of the state quantity information, which is stored in said first storing means, from said first storing means and changes the state quantity information according to the processing state of said encoding processing with respect to the image information, and then writes back the state quantity information to said first storing means.

2. The encoding device according to claim 1, further comprising:

second means which stores the image information to be inputted;

first temporary storing means which is provided in said encoding means and temporarily stores the state quantity information read out from said first storing means; and

second temporary storing means which is provided in said encoding means and temporarily stores the image information read out from said second storing means, wherein

said encoding means reads out a part of the image information from said second storing means and temporarily stores the part of the image information in said second temporary storing means, and in synchronization with this, reads out a part of the state quantity information, which is necessary when said encoding processing is applied to the image information, from said first storing means and temporarily stores the part of the state quantity information in said first temporary storing means, changes the state quantity information according to the processing state of said encoding processing with respect to the image information temporarily stored in said second temporary storing means, and then writes back the state quantity information to said first storing means.

3. The encoding device according to claim 2, wherein:

said first storing means stores plural kinds of the state quantity information which is necessary when said encoding means applies said encoding processing to the image information; and

said encoding means reads out a part of the state quantity information, which is necessary when said encoding processing is applied to the image information temporarily stored in said second temporary storing means, from said first storing means for each of

the necessary kinds, temporarily stores the part of the state quantity information in said first temporary storing means, changes the respective kinds of state quantity information according to the processing state of said encoding processing with respect to the image information temporarily stored in said second temporary storing means, and then writes back the state quantity information to said first storing means.

4. The encoding device according to claim 1, wherein
said encoding means applies said encoding processing to the image information with predetermined plural pixels as a unit.

5. The encoding device according to claim 1, wherein:
said encoding means comprises plural encoding processing means which are provided in association with the plural kinds of encoding processing, which should be applied to the image information in order, respectively; and

said plural kinds of encoding processing with respect to the image information is performed in parallel with preceding said encoding processing by said respective corresponding encoding processing means with a predetermined first phase difference according to contents of said encoding processing, respectively.

6. The encoding device according to claim 5, wherein

said encoding processing means, which corresponding to said plural kinds of encoding processing, are provided for each a predetermined unit of said image information, respectively, and said encoding processing means for each predetermined unit of the image information performs said plural kinds of encoding processing in parallel, respectively, with predetermined second phase difference.

7. The encoding device according to claim 1, wherein:

said encoding means and said first storing means are integrally formed as an integrated circuit; and

the encoding device comprises external storing means which is provided outside said encoding means and said first storing means which are formed as the integrated circuit, and stores the image information outputted from a signal processing unit, which is integrally formed as the integrated circuit together with the encoding means and the first storing means, in said external storing means, sequentially reads out only necessary image information from the external storing means, and subjects the image information to said encoding processing with said encoding means.

8. An encoding method of encoding image information to be inputted, comprising:

a first step of, when predetermined encoding processing is applied to image information, storing state quantity information representing a predetermined state quantity, which is used while being sequentially updated according to a processing state of said encoding processing, in first storing means; and

a second step of applying said encoding processing to the image information, wherein,

in the second step, only a necessary part of the state quantity information, which is stored in said first storing means, is read out from said first storing means, and the state quantity information is changed according to the processing state of said encoding processing with respect to the image information, and then the state quantity information is written back to said first storing means.

9. The encoding method according to claim 8, wherein:

in said first step, the image information to be inputted is stored in second storing means; and

in said second step, a part of the image information is read out from said second storing means and temporarily stored in predetermined second temporary storing means, and in synchronization with this, a part of the state quantity information, which is necessary when said encoding processing is applied to the image information, is read out from said first storing means and temporarily stored in predetermined first

temporary storing means, the state quantity information is changed according to the processing state of said encoding processing with respect to the image information temporarily stored in said second temporary storing means, and then the state quantity information is written back to said first storing means.

10. The encoding method according to claim 9, wherein:

in said first step, plural kinds of the state quantity information, which is necessary when said encoding means applies said encoding processing to the image information, is stored in said storing means; and

in said second step, a part of the state quantity information, which is necessary when said encoding processing is applied to the image information temporarily stored in said second temporary storing means, is read out from said first storing means for each of the necessary kinds and temporarily stored in said first temporary storing means, the respective kinds of state quantity information are changed according to the processing state of said encoding processing with respect to the image information temporarily stored in said second temporary storing means, and then the state quantity information is written back to said first storing means.

11. The encoding method according to claim 8, wherein,

in said second step, said encoding processing is applied to the image information with predetermined plural pixels as a unit.

12. The encoding method according to claim 8, wherein,

in said second step, plural kinds of said encoding processing, which should be applied to the image information in order, is performed in parallel with preceding said encoding processing with a predetermined first phase difference according to contents of said encoding processing, respectively.

13. The encoding method according to claim 12, wherein,

in said second step, respective kinds of said encoding processing are performed in parallel for each predetermined unit of the image information with a predetermined second phase difference.

14. An encoding device, which applies plural kinds of predetermined encoding processing in order to image information to be inputted, comprising plural encoding processing means which are provided in association with said respective kinds of encoding processing, wherein

the encoding device performs said plural kinds of encoding processing with respect to the image information in parallel with preceding said encoding processing using said respective

corresponding encoding processing means with a predetermined first phase difference according to contents of said encoding processing.

15. The encoding device according to claim 14, wherein

said encoding processing means corresponding to respective kinds of said encoding processing are provided for each predetermined unit of the image information, and said encoding processing means for each predetermined unit of the image information perform respective kinds of said encoding processing with a predetermined second phase difference, respectively.

16. The encoding device according to claim 14, further comprising

first storing means which, when said respective encoding processing means apply said encoding processing to the image information, stores state quantity information representing a predetermined state quantity which is used while being sequentially updated according to a processing state of said encoding processing, wherein

said respective encoding processing means read out only a necessary part of the state quantity information, which is stored in said first storing means, from said first storing means and change the state quantity information according to the processing state of said encoding processing with respect to the image information, and then write back the state quantity information to said first storing means.

17. The encoding device according to claim 16, further comprising:

second means which stores the image information to be inputted;

first temporary storing means which is provided in said respective encoding processing means and temporarily stores the state quantity information read out from said first storing means; and

second temporary storing means which is provided in said respective encoding processing means and temporarily stores the image information read out from said second storing means, wherein

said respective encoding processing means read out a part of the image information from said second storing means and temporarily store the part of the image information in said second temporary storing means, and in synchronization with this, read out a part of the state quantity information, which is necessary when said encoding processing is applied to the image information, from said first storing means and temporarily store the part of the state quantity information in said first temporary storing means, change the state quantity information according to the processing state of said encoding processing with respect to the image information temporarily stored in said second temporary storing means, and then write back the state quantity information to said first storing means.

18. The encoding device according to claim 17, wherein

said first storing means stores plural kinds of the state quantity information which is necessary when said encoding means applies said encoding processing to the image information; and

said respective encoding processing means reads out a part of the state quantity information, which is necessary when said encoding processing is applied to the image information temporarily stored in said second temporary storing means, from said first storing means for each of the necessary kinds, temporarily stores the part of the state quantity information in said first temporary storing means, changes the respective kinds of state quantity information according to the processing state of said encoding processing with respect to the image information temporarily stored in said second temporary storing means, and then writes back the state quantity information to said first storing means.

19. The encoding device according to claim 14, wherein

said respective encoding processing means apply corresponding said encoding processing to the image information with predetermined plural pixels as a unit.

20. The encoding device according to claim 14, wherein:

said respective encoding processing means are integrally formed as an integrated circuit; and

the encoding device comprises external storing means which is provided outside said respective encoding processing means which are formed as the integrated circuit, and stores the image information outputted from a signal processing unit, which is integrally formed as the integrated circuit together with the respective encoding processing means, in said external storing means, sequentially reads out only necessary image information from the external storing means, and subjects the image information to said encoding processing with said encoding means.

21. An encoding method of applying plural kinds of predetermined encoding processing in order to image information to be inputted, comprising

an encoding step of performing said plural kinds of encoding processing with respect to the image information in parallel with said respective preceding encoding processing with a predetermined first phase difference according to contents of said encoding processing.

22. The encoding method according to claim 21, wherein,

in said encoding step, respective kinds of said encoding processing are performed in parallel for each predetermined unit

of the image information with a predetermined second phase difference.

23. The encoding method according to claim 21, wherein said encoding step comprises:

a first step of, when respective kinds of said encoding processing are applied to the image information, storing state quantity information representing a predetermined state quantity, which is used while being sequentially updated according to a processing state of said encoding processing, in first storing means; and

a second step of reading out only a necessary part of the state quantity information, which is stored in said first storing means, from said first storing means, and changing the state quantity information according to the processing state of said encoding processing with respect to the image information, and then writing back the state quantity information to said first storing means.

24. The encoding method according to claim 23, wherein:

in said first step, the image information to be inputted is stored in second storing means; and

in said second step a part of the image information is read out from said second storing means and temporarily stored in predetermined second temporary storing means, and in

synchronization with this, a part of the state quantity information, which is necessary when said encoding processing is applied to the image information, is read out from said first storing means and temporarily stored in predetermined first temporary storing means, the state quantity information is changed according to the processing state of said encoding processing with respect to the image information stored in said second temporary storing means, and then the state quantity information is written back to said first storing means.

25. The encoding method according to claim 21, wherein
respective kinds of said encoding processing are applied to the image information with predetermined plural pixels as a unit.

26. A decoding device for decoding encoded image information consisting of encoded image information to be inputted, comprising:

decoding means which applies predetermined decoding processing to the encoded image information; and

first storing means which, when the decoding means applies said decoding processing to the encoded image information, stores state quantity information representing a predetermined state quantity which is used while being sequentially updated according to a processing state of said decoding processing, wherein

said decoding means reads out only a necessary part of the state quantity information, which is stored in said first storing means, from said first storing means and changes the state quantity information according to the processing state of said decoding processing with respect to the encoded image information, and then writes back the state quantity information to said first storing means.

27. The decoding device according to claim 26, further comprising second storing means which stores decoded said image information, wherein:

said decoding means comprises: first temporary storing means which temporarily stores the state quantity information read out from said first storing means; and

second temporary storing means which temporarily stores the decoded image information, wherein

said decoding means reads out a part of the state quantity information, which is necessary when said decoding processing is applied to the encoded image information, from said first storing means and temporarily stores the part of the state quantity information in said first temporary storing means, changes the state quantity information according to the processing state of said decoding processing with respect to the encoded image information, and then writes back the state quantity information to said first storing means, and also writes the image information,

which is stored in said second temporary storing means, decoded by said decoding processing in said second storing means in synchronization with the writing back of the state quantity information to said first storing means.

28. The decoding device according to claim 27, wherein

said first storing means stores plural kinds of said stage quantity information which is necessary when said decoding means applies said decoding processing to said encoded image information; and

said decoding means reads out a part of the state quantity information, which is necessary when said decoding processing is applied to the encoded image information of the decoding object, from said first storing means for each of the necessary kinds, temporarily stores the part of the state quantity information in said first temporary storing means, changes the respective kinds of state quantity information according to the processing state of said decoding processing with respect to the encoded image information, and then writes back the state quantity information to said first storing means.

29. The decoding device according to claim 26, wherein

said decoding means applies said decoding processing to the encoded image information with predetermined plural pixels as a unit.

30. A decoding method of decoding encoded image information consisting of encoded information to be inputted, comprising:

a first step of, when decoding processing is applied to the encoded image information, storing state quantity information representing a predetermined state quantity, which is used while being sequentially updated according to a processing state of said decoding processing; and

a second step of applying predetermined decoding processing to the encoded image information, wherein,

in said second step, only a necessary part of the state quantity information, which is stored in said first storing means, is read out from said first storing means, and the state quantity information is changed according to the processing state of said decoding processing with respect to the encoded image information, and then the state quantity information is written back to said first storing means.

31. The decoding method according to claim 30, wherein,

in said second step, a part of the state quantity information, which is necessary when said decoding processing is applied to the encoded image information, is read out from said first storing means and temporarily stored in said first temporary storing means, the state quantity information is changed according to the processing state of said decoding processing with respect to the

encoded image information, and then the state quantity information is written back to said first storing means, and the image information, which is stored in said second temporary storing means, decoded by said decoding processing is also written in said second storing means in synchronization with the writing back of the state quantity information to said first storing means.

32. The decoding method according to claim 31, wherein:

in said first step, plural kinds of the state quantity information, which is necessary when said decoding processing is applied to the encoded image information, is stored in said first storing means; and

in said second step, a part of the state quantity information, which is necessary when said decoding processing is applied to the encoded image information of the decoding object, is read out from said first storing means for each of the necessary kinds and temporarily stored in said first temporary storing means, the respective kinds of state quantity information are changed according to the processing state of said decoding processing with respect to the encoded image information, and then the state quantity information is written back to said first storing means.

33. The decoding method according to claim 30, wherein,

in said second step, said decoding processing is applied to the encoded image information with predetermined plural pixels as a unit.

34. An image information processing system comprising an encoding device for encoding image information and a decoding device for decoding the encoded image information, wherein:

said encoding device comprises:

encoding means which applies predetermined encoding processing to the image information; and

first storing means which, when said encoding means applies said encoding processing to the image information, stores state quantity information representing a predetermined state quantity which is used while being sequentially updated according to a processing state of said encoding processing, wherein

said encoding means reads out only a necessary part of the state quantity information, which is stored in said first storing means, from said first storing means and changes the state quantity information according to the processing state of said encoding processing with respect to the image information, and then writes back the state quantity information to said first storing means, and

said decoding device comprises:

decoding means which applies predetermined decoding processing to the encoded image information; and

first storing means which, when said decoding means applies said decoding processing to the encoded image information, stores state quantity information representing a predetermined state quantity which is used while being sequentially updated according to a processing state of said decoding processing, wherein

said decoding means reads out only a necessary part of the state quantity information, which is stored in said first storing means, from said first storing means and changes the state quantity information according to the processing state of said decoding processing with respect to the encoded image information, and then writes back the state quantity information to said first storing means.

35. An image information processing method comprising an encoding step of encoding image information and a decoding step of decoding the encoded image information, wherein:

said encoding step includes:

a first step of, when predetermined encoding processing is applied to the image information, storing state quantity information representing a predetermined state quantity, which is used while being sequentially updated according to a processing state of said encoding processing, in first storing means; and

a second step of applying said encoding processing to the image information, wherein,

in said second step, only a necessary part of the state quantity information, which is stored in said first storing means, is read out from said first storing means, and the state quantity information is changed according to the processing state of said encoding processing with respect to the image information, and then the state quantity information is written back to said first storing means, and

said decoding step comprises:

a first step of, when said decoding processing is applied to the encoded image information, storing state quantity information representing a predetermined state quantity, which is used while being sequentially updated according to a processing state of said decoding processing; and

a second step of applying predetermined decoding processing to said encoded image information, wherein,

in said second step, only a necessary part of the state quantity information, which is stored in said first storing means, is read out from said first storing means, and the state quantity information is changed according to the processing state of said decoding processing with respect to the encoded image information, and then the state quantity information is written back to said first storing means.